

introduced into the rock and is not an ordinary decomposition product.

The known representatives of the subrang tuolumnose are not numerous, there being only three listed in Washington's tables,⁴ of which one, the albite diorite of Douglas Island, is considerably altered. This fact and the presence of anatase in the Nevada rock are thought to warrant the publication of this brief petrographic note.

BOTANY.—*The genus Annona: the derivation of its name and its taxonomic subdivisions.* W. E. SAFFORD, Bureau of Plant Industry.

The genus *Annona*, which includes the custard apple (*Annona reticulata*) and the soursop (*Annona muricata*), was described by Plumier (1703) under the name of *Guanabanus*, which he adopted from *guanabano*, the vernacular name of one of the species on the island of Santo Domingo, published by Oviedo in his account of the fruit trees of the New World (1535).

Linnaeus was at first inclined to accept as the name of this genus *Anona*, from the vernacular name *anon*, or *hanon*, applied to another species, and used by various early authors; but in his *Hortus Cliffortianus* (1737) he rejects both *Guanabanus* and *Anona*, as barbarous words, and substitutes for them the classic Latin *Annona*. This name, signifying "the year's harvest" of fruit, wine, etc., he thought particularly applicable, on account of the edible fruit of the *Annona*, which is relished by the natives of the countries where it grows.¹ This was in accordance with the principal of rejecting barbarous names, which he afterwards defended in his *Philosophie Botanique* (1788)².

⁴Washington, H. S.: Chemical analyses of igneous rocks. Profess. Paper, U. S. Geol. Survey No. 14, p. 199. 1903.

¹"*Guanabanus* et *Anona* sunt vocabula barbara, ut tamen servetur sonus *Annonam* dico ob fructum incolis gratum."—Linnaeus, Hort. Cliff. 222. 1737.

²"Nous adoptons comme nouveaux nés des noms Barbares, auxquels nous avons donné l'exclusion, lorsque nous rendons nouveaux des noms à exclure, en les formant du Grec ou du Latin *Corossol*, *Annona* (*Anona* des Américains), de la moisson."—Linnaeus, Phil. Bot. 208. 1788.

Annona then, and not *Anona*, must be the name used for the genus. It was published in the first edition of the *Species Plantarum* (1753), from which modern binomial nomenclature takes its origin; and it is equivalent to Plumier's genus *Guanabanus*, as stated by Linnæus in his *Genera Plantarum* (1754). He changes the name to *Annona*, and typifies the genus by the species *Annona muricata*, Plumier's "Guanabanus fructu e viride lutescente molliter aculeato."³

The name of the family must also preserve its original form *Annonaceae*, as published by Richard in 1808; not "Anonaceae," as published by Dunal in 1817, and by DeCandolle in 1818.⁴

The genus is naturally divided into several sections owing to the diversity in the form of the flowers. The subdivisions generally accepted heretofore have been: *Guanabani* (Plumier), including *Annona muricata* and its allies; *Attæ* (Martius), including *Annona squamosa* and its allies; and *Anonellæ* (Baillon), based upon *Annona globiflora*, a dwarf shrubby plant of eastern Mexico.

The discovery of new species with characters quite distinct from any of those included in the above sections has made an additional subdivision necessary, based upon *Annona macrophyllata* the most striking peculiarity of which is the presence of broad persistent leaf-like bracts at the base of the peduncle. In conforming with modern botanical usage the author proposes the following names for the subdivisions of the genus.

SECTION I. **Euannonia** (Type, *Annona muricata*).—In this section the flowers have a corolla composed of 6 broadly ovate or orbicular concave petals in two series, the 3 outer ones thick and leathery and more or less cordate at the base, the 3 inner ones somewhat smaller and thinner but conspicuous. Here are placed *Annona muricata*, the soursop, which is the type of the genus *Annona*; *Annona montana*, the wild soursop of the West Indies; *Annona glabra*, the alligator apple of mangrove swamps; *Annona purpurea*, the soncoya of southern Mexico and Central America; and *Annona uncinata*, an undescribed species from the *tierra caliente* of Mexico.

³ Linnæus Sp. Pl. 536. 1753.—Gen. Pl. 241. 1754.

⁴ Richard, *Demonstr. Bot. ou Analyse du Fruit*, 17. 1808.

SECTION II. **Atta** (Type *Annona squamosa*).—In this section the corolla is composed of 3 narrow, oblong or lanceolate petals, never opening to the base, or if there are 6 petals the inner ones are reduced to small scales. The peduncles are usually nodding or reflexed and are devoid of leaf-like bracts. Here are placed *Annona cherimolia* and the closely allied *Annona longiflora*, both of which have velvety leaves and delicious fruit called chirimoya; *Annona squamosa*, the sugar apple, atta, or pomme cannelle; *Annona reticulata*, the common custard apple, or “bullock’s heart;” and *Annona scleroderma*, a new custard apple from Guatemala.

SECTION III. **Ilama** (Type, *Annona macrophyllata*).—In this section the peduncles are remarkable for a pair of orbicular or oval persistent leaf-like bracts at their base. The corolla is composed of 3 oblong or linear petals swollen at the base and opening widely when the flower is mature. Here are placed *Annona macrophyllata* and the closely allied *Annona diversifolia*, a new species from Colima. The name *Ilama* proposed by the writer for this section is a vernacular name of Aztec origin applied to the fruit of the latter species at Colima.

SECTION IV. **Annonella** (Type, *Annona globiflora*).—In this section are included dwarf shrubby species, with very small 3-petaled flowers and small net-veined leaves resembling those of certain species of *Rollinia* rather than the typical feather-veined leaves of the genus *Annona*. Here are placed *Annona globiflora* of eastern Mexico, the peculiar appearance and habit of which suggests to Baillon the creation of a separate section of the genus to include it, and *Annona palmeri*, a closely allied new species from the *tierra caliente* of western Mexico. In both of these species the fruit is about the size of a small peach, with little pulp surrounding the comparatively large yellowish *Rollinia*-like seeds.